Contaminated Sediments: We Aren’t Clean

Goals of the Contaminated Sediment Program

- Prevent the Volume of Contaminated Sediment from Increasing
- Reduce the Volume of Existing Contaminated Sediment
- Ensure Sediment Dredging and Dredged Material Disposal are Managed in an Environmentally Sound Manner
- Develop Scientifically Sound Sediment Management Tools for use in Pollution Prevention, Source Control, Remediation,and Dredged Material Management

Not a Goal

Prevent, Assess, Control, or Remediate

- Turbidity
- Imbeddedness
- Benthic Smothering
- Anything else having to do with Clean Sediment

Achieving the Goals

- Workshop
- Equilibrium Partitioning
- Research
- Equilibrium Partitioning Sediment Guidelines (ESG's)

The Workshop

Charge to Participants: Describe the state of the science for assessing the effects of sediment contamination on aquatic organisms, design and approach for deriving numeric guidelines that will protect sediment dwelling organisms from sediment contaminants, outline the research needed to develop the guidelines.

Result: The evaluation of a number of approaches and the selection of Equilibrium Partitioning Theory as the foundation for guideline derivation.

Equilibrium Partitioning

From the workshop it was determined that:

- EqP would likely yield guidelines that were predictive of biological effects in the field and would be defensible in regulatory implementation.
- EqP directly addresses the issue of contaminant bioavailability.
- EqP could take advantage of the extensive biological effects data based used to establish national water quality criteria.
- EqP based numerical guidelines could be readily incorporated into existing regulatory programs.
- EqP based numerical guidelines could provide a simple and cost effective means of assessing sediment.
- EqP could be used to link sources to sinks.

Research Program

- Understand the bioavailability of nonionic organics, metals mixtures, and PAH mixtures in sediments to benthic organisms.

- Determine what bioavailable concentration of a contaminant must not be exceeded in order to protect benthic organisms.

Equilibrium Partitioning Sediment Guidelines (ESG's)

Nonionic Organic Chemicals: ESG= K_{oc}* f_{oc} * FCV

Metals Mixtures: $\sum$SEM-AVS$\leq$0

PAH Mixtures: $\sum$([PAH ug/g OC]/[FCV_{Kow}* K_{oc}]<1

NSI Sediment Quality Advisory Levels: uses the Eq-P approaches to derive values for a number of chemicals for use as assessment tools

Why You're Here

We've got contaminated sediments covered

We need your clean sediment expertise

Contaminated Sediment Contacts

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